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ABSTRACT

This short, narrative pamphlet on plywood mills accompanies the appropriate grade level curriculum guide. (BP)

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The Plywood Mill

L 3
Grade 5

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PROJECT COULD

CAREER ORIENTATION UTILIZING LANGUAGE DEVELOPMENT

A PACE PROJECT

Elementary and Secondary Education Act of 1965

Project COULD was developed as a means of building skills, knowledges, and attitudes upon elementary children's previously acquired backgrounds. Children learn to speak the grammar and vocabulary characteristic of the language heard most frequently at home and in the immediate environment.

A series of units of instruction were developed from the concepts and vocabulary of the industries indigenous to Coos County. The intention was to promote vocational awareness, exploration and language development for the students in grades 3 through 8.

Materials prepared by Project COULD are available from the IMC of Coos County Intermediate Education District, 2405 Colorado Street, North Bend, Oregon, 97459.

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Career day was scheduled for members of the sixth grade library class next Thursday. Mrs. Brick had just passed out a list of local firms participating in the program.

"About 25 local employers have agreed to host one of you for the entire day," Mrs. Brick said. "This will be a good chance to see exactly what workers do during the day. The school will provide transportation, but you must get permission from your parents to be late getting home."

Tim stuffed the permission slip in his pocket to have Mom sign later and turned to the list. He couldn't decide whether to make the plywood mill or the paper plant his first choice. He had taken a tour of the paper plant, so he decided to select the plywood mill.

Two days later when Mrs. Brick passed out the assignments for career day Tim was delighted to discover he would get to spend the day at the plywood mill.

Mrs. Brick said the students would not only be expected to do a report on their career day experience, but they must prepare some questions to ask their guide about the work being done. "Have at least two questions for us to discuss in class Tuesday before you go," Mrs. Brick told the students.

"May we have more than two questions?" Shelley asked.

"Of course," Mrs. Brick replied. "The more questions you have the more you will learn about the place you visit."

Tim went home that afternoon and explained his homework to his mother. "I'm going to ask how plywood is made and how much workers get paid," Tim declared.

"Those questions are pretty general," Tim's

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mother said. "Let's sit down with the encyclopedia and see if we can't think of some better questions to ask."

As they looked up plywood, Tim learned first that it is defined as a building material made of thin layers of wood glued together. The layers are called plies or veneers.

Tim learned plywood making was not something new. There were traces of laminated wood in the tombs of the Pharaohs. The Egyptians made plywood to produce a beautiful wood. They glued the sheet of veneer with a pretty grain to a piece of ordinary wood.

When plywood making began in the United States early in 1900, it was used mainly for cabinets and doors. But new uses were started when people learned it was stronger than regular wood, as well as prettier, and that it could be shaped and formed more easily than solid wood.

The encyclopedia said the story of plywood begins when the tree is cut in the forest. When it gets to the plywood factory, the trunk is cut in lengths to fit their veneer cutting machines.

Bark is taken off the logs and sometimes the logs are heated. Heat makes cutting the veneer in the rotary lathe easier. The log is held between two chucks, like a vise. A knife cuts off a thin sheet of veneer as the log is turned on the lathe.

Before the sheets of veneer are glued together, they are cut into pieces and bad spots clipped out. The veneer also is dried before glue is applied.

The glued sheets are pressed together in a hot press to form the plywood panel. After it is cool it is edged, trimmed and sanded.

"Why don't you ask how many layers of veneer are

The veneer unrolled in a long ribbon. Tim noticed they cut it in pieces before it was put in trays to go to the dryer. "The spotter puts the sheets on the trays so the clipper operator can take out defects before the wood is fed into the dryers," Mr. Stone explained.

"After drying the sheets are taken to a layup machine in the next room," Mr. Stone said. The two walked into the room. It smelled like Tim's model glue.

Tim watched the glue being spread on five pieces, or plies, and then saw the pieces assembled. "Are there always five layers of the veneer?" Tim asked.

"No, some have only three and others have as many as nine. It is important to alternate the direction of the grain, so it is always an odd number. Having the wood fibers at right angles to each other creates the extra strength of the plywood," Mr. Stone said.

The hot press operator was about to take his coffee break. Tim and Mr. Stone joined him. "What do you do?" Tim asked.

"I see that the hot press operates correctly and make adjustments when it isn't. The wood must be heated up to 300 degrees under 170 pounds of pressure. The combination of heat and pressure make the plies stick to each other. The machine is really automatic, it even unloads itself, but sometimes a problem occurs."

The lay up foreman joined them for coffee. He explained to Tim that criss crossing the grain in the sandwich of wooden veneer helped keep down swelling and shrinking. "Using the odd number of plies keeps the plywood from warping, too," the foreman said. The men finished their coffee about the same time Tim finished his coke, and the three of them returned to the lay up room.

At the end of the hot press the plywood piled up. It was stacked over along the other side of the room. Mr. Stone explained, "It has to cool completely before we put it in the finishing machine to edge, trim and sand it."

As they walked into the next room Tim said, "The glue really smells strong. Is it a special kind?"

"Today they are making outdoor plywood. Waterproof glue is needed for that. Older workers told me when I was young and just starting in this business that this glue smells good. They used to use animal glue, and that really smelled bad!"

When the plywood is sanded, a grader sorts it along the conveyer belt. Some of it must be sent to the finish patcher to have defects patched. Those that are good go to the end of the chain and drop into a pile.

"I have to get back to my office now," Mr. Stone said. "A young man has applied for a job as a machine tender and I have to interview him. Would you like to sit and listen?" Mr. Stone asked Tim as they walked back to the row of offices for the plant manager, general foreman, quality control technician and secretaries.

"Sure," Tim said.

Mr. Stone explained to the man applying for the job that Tim was involved in a career day. The young man was impressed and said, "I didn't think about what work I wanted to do until I was nearly through high school. It's a good idea to start looking at different jobs."

Mr. Stone asked the man about his educational background and learned he had taken some college courses

needed to make a piece of plywood?" Tim's mother suggested. Tim thought it might be a good idea to find out what kind of glue is used that is strong enough to hold wood together.

"I'm going to ask if they peel the whole log, too," Tim declared.

Mrs. Brick was pleased Tim had spent some time learning about plywood. She reminded him he would be doing a report, so when he had free time during the day he wrote down some of the things he had already learned.

When the school bus dropped Tim off at the plywood mill Thursday, he was met at the door by a big, tall man. "I'm Mr. Stone. You will spend most of the day with me. My job is personnel manager. I interview people who want to work at our mill. After they are hired, I try to help them with any problems they might have."

"Have you ever taken a tour of the mill?" Mr. Stone asked Tim.

"No," Tim replied.

"Let's do that first and then maybe you can spend part of your day with some of the other workers here," Mr. Stone said.

Outside the mill there was a pondman. He was sorting logs and sending them up the chute into the building. "The logs arrive for the barker operator to debark," Mr. Stone explained as they entered the door at the far end of the building.

"After the bark is removed the block saw cuts the logs into lengths that exactly fit the length of the lathe," Mr. Stone pointed out.

"Then the big rotary lathe peels the log. That man is the lathe operator," Mr. Stone said as he pointed

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across the room. "Let's walk over and stand behind him so we can see better what he does."

The lathe operator centered the log between the chucks of the lathe. He pushed a lever to start the log spinning so the long blade could slice off the log in a thin sheet.

"Do they peel the whole log?" Tim asked.

"Almost," Mr. Stone replied. "They can go down to about eight inches."

"Then do they throw that away?" Tim asked.

"Heavens, no," Mr. Stone was quick to answer. "We load them and sell them to the paper mill or saw mill. They are simply treated like a small log."

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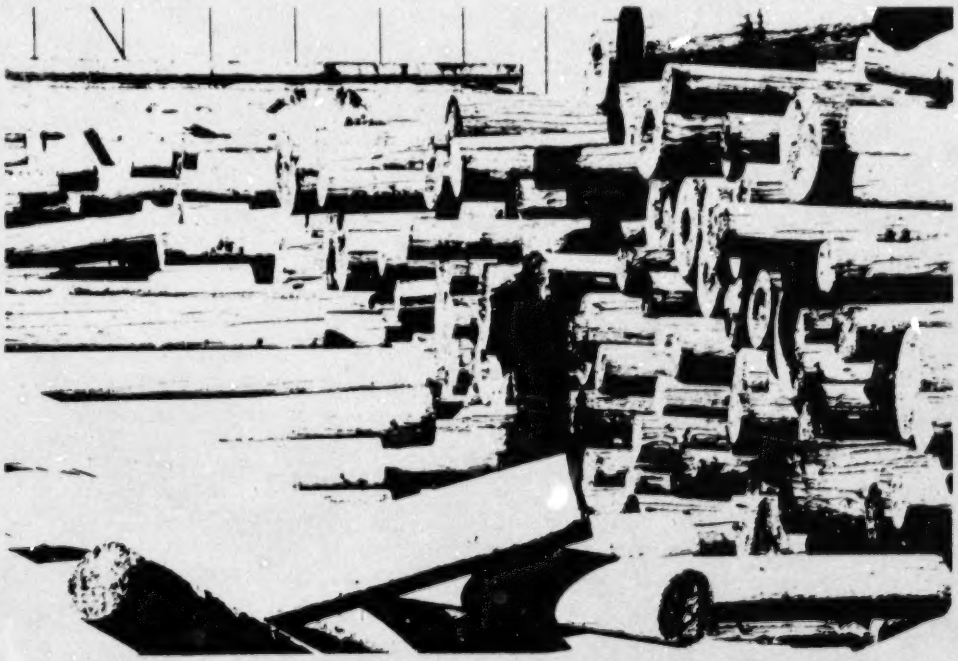

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in forestry and math. Then he asked the young man about previous work experience.

"I have always had a job from the time I started a paper route," the man said. "When I was in high school, I started working at the bakery and the summer before I started college I worked in the sawmill across the river."

"Do you know anything about machine tending?" Mr. Stone asked.

"I helped with the barking machine at the sawmill," he said.

Mr. Stone asked the man to fill out a formal application listing names of people who would recommend him for the job.

"How much does the job pay?" the applicant asked.

"The current contract rate is $4.50 an hour," Mr. Stone said.

When the interview was done, Tim joined Mr. Stone in the lunchroom. Some of the workers brought their lunchboxes, but others went through the cafeteria line. Tim had a bowl of vegetable soup and a glass of milk and then was ready for his afternoon.

"Several people have applied for the machine tender's job, so I need to meet with the plant manager and foreman to decide which one we should hire." Mr. Stone told Tim. "I want you to meet them, but our conversation will be personal so my secretary Miss Jones will take you back into the mill. You can spend some time with the shipping foreman," Mr. Stone said.

As Miss Jones walked with Tim back to the shipping area, he asked her about her work. "I answer the telephone for all the offices and keep the shipping orders," she said. "Each secretary has extra duties

besides just typing."

"Are there many jobs for women in the plywood mill?" Tim asked.

"Most of the jobs can be done by women since we are automated," she replied. "Most women prefer the office jobs, but we do have two on the floor. One works in quality control and the other is a grader."

"This is Bill, our shipping foreman," Miss Jones said.

"What do you want to see?" Bill asked Tim.

"What happens to the plywood at the end of the grading belt?" Tim asked.

Bill explained it was first strapped together by the strapper operator and a machine was used to tighten and bind the strap. Once tightened the stack of plywood is picked up by the forklift trucks and stored in the warehouse. Drivers of these trucks are called stacker operators.

Bill took Tim into the warehouse. A big sliding door was open and stacks of the plywood were being loaded right onto a railroad freight car. "Most of the plywood is shipped by rail," Bill explained. "At the other end we do have a ramp to load trucks and some of the finished plywood is sent to the market that way."

Tim was anxious to start his report when he got home from the mill. He compared notes with others in the library class on the bus ride home and discovered they all had interesting days.

"Let's ask Mrs. Brick for another career day so we can visit a different place," Tim said as he bounded out of the bus.

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